UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/117,380	01/27/99	FRIDKIN M	FRIDKIN=1

HM12/0912

BROWDY & NEIMARK
419 SEVENTH STREET NW
WASHINGTON DC 20004

EXAMINER	
HUTSON,R	
ART UNIT	**PAPER NUMBER**
1652	11

DATE MAILED: 09/12/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/117,380	Fridkin et al.
Examiner	**Group Art Unit**
Richard Hutson	1652

☒ Responsive to communication(s) filed on Apr 18, 2000

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-13 is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-13 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☒ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1-8 (9-13 dependent from) are rejected under 35 U.S.C. § 101 because the claimed invention is directed toward non-statutory subject matter. In the absence of the hand of man, naturally occurring proteins and peptides are considered non-statutory subject matter. Diamond v. Chakrabarty, 206 USPQ 193 (1980). This rejection may be overcome by amending the claims to contain wording such as "An isolated and purified peptide ..." .

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2, 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 (2 and 9-13 dependent from) is further indefinite in the recitation of "a core peptide corresponding to positions 89-96 of the sequence of human C-reactive protein (CRP) of the formula..." One of skill in the art would not know what is encompassed and what is not encompassed by this recitation. It is unclear if the intent of this limitation is to a core peptide

which comprises positions 89-96 of the sequence of human C-reactive protein of the formula : Val_{89}-Thr-Val-Ala-Pro-Val-His-Ile_{96} (of SEQ ID NO: 3) or is the limitation to a core peptide which is a homolog of human C-reactive protein and has a sequence which corresponds to positions 89-96 of the sequence of the formula of SEQ ID NO: 3. For the purpose of compact prosecution this recitation is interpreted as meaning a core peptide which comprises positions 89-96 of the sequence of human C-reactive protein of the formula : Val_{89}-Thr-Val-Ala-Pro-Val-His-Ile_{96} (of SEQ ID NO: 3)...

3. Claims 10 and 11 provide for the use of a CRP-derived peptide according to any of claims 1 to 8, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 10 and 11 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Yavin et al. (Letters in Peptide Science 2: 7-16, 1995).

Yavin et al. teach that the proteolysis of human C-reactive protein by neutrophil-derived lysosomal enzymes generates peptides which modulate neutrophil function and they further teach the implications to the anti-inflammatory mechanism. Specifically, Yavin et al. teach the isolation of C-reactive protein (CRP) (See page 8, column 1, Materials and Methods) and peptide fractions generated from CRP by lysosomal enzyme digestion were assayed for their effect on superoxide ion generation using a cytochrome c assay. Those fractions which showed greater then 25% inhibition of superoxide ion formation were further identified chemically and are listed in Table 1. Yavin et al. were in possession of additional fragments of CRP besides those identified in Table 1 as inhibiting superoxide ion formation as well as the full length CRP protein. While Yavin et al. do not teach that these peptides are capable of inhibiting *in vitro* the enzymatic activity of human Leukocyte Elastase and/or human Cathepsin G, many if not all of these proteins, especially the full-length CRP protein itself would have this ability inherently, given the proper conditions, such as concentration etc. Thus since the full-length CRP as well as many additional peptides that Yavin et al. was in possession of meet the limitation of claim 1 (ix), reciting a peptide obtained by elongation of a peptide (i) to (viii) at the N- and /or C-terminal, claim 1 and 2 are anticipated by Yavin et al.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Shepard et al. (J. Immunol. 145 (5): 1469-1475, 1990).

Shepard et al. teach the amino acid sequence of peptides generated from human C-reactive protein by a neutrophil membrane protease and the effects of these peptides on neutrophil oxidative metabolism and chemotaxis. Specifically, Shepard et al. teach the isolation of C-reactive protein (CRP) (See page 1470, column 1, Materials and Methods) and peptide fractions generated from CRP by lysosomal enzyme digestion were assayed for their effect on neutrophil superoxide ion generation and chemotaxis, as well as superoxide scavenging activity, toxicity, and ability to modulate neutrophil phagocytosis and degranulation. Those fractions which showed inhibition of superoxide ion formation were further identified chemically and are listed in Table II. Shepard et al. were in possession of additional fragments of CRP besides those identified in Table II as inhibiting superoxide ion formation as well as the full length CRP protein. While Shepard et al. do not teach that these peptides are capable of inhibiting *in vitro* the enzymatic activity of human Leukocyte Elastase and/or human Cathepsin G, many if not all of these proteins, especially the full-length CRP protein itself would have this ability inherently, given the proper conditions, such as concentration etc. Thus since the full-length CRP as well as many additional peptides that Shepard et al. was in possession of meet the limitation of claim 1 (ix), reciting a peptide obtained by elongation of a peptide (i) to (viii) at the N- and /or C-terminal, claim 1 and 2 are anticipated by Shepard et al.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yavin et al. (Letters in Peptide Science 2: 7-16, 1995).

As discussed above, Yavin et al. teach that the proteolysis of human C-reactive protein by neutrophil-derived lysosomal enzymes generates peptides which modulate neutrophil function and they further teach the implications to the anti-inflammatory mechanism. Yavin et al. teach that these CRP-derived peptides and thus full-length CRP itself are potent modulators of pro-inflammatory functions of human neutrophils, e.g., superoxide ion production and chemotaxis. One of ordinary skill in the art would be motivated to create a pharmaceutical composition comprising a CRP-derived peptide as taught by Yavin et al. and using such a pharmaceutical composition as an anti-inflammatory medication and a means of modulating pro-inflammatory functions of neutrophils.

9. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard et al. (J. Immunol. 145 (5): 1469-1475, 1990).

As discussed above, Shepard et al. teach the amino acid sequence of peptides generated from human C-reactive protein by a neutrophil membrane protease and the effects of these

peptides on neutrophil oxidative metabolism and chemotaxis. Shepard et al. teach that these CRP-derived peptides and thus full-length CRP itself are potent modulators of pro-inflammatory functions of human neutrophils, e.g., superoxide ion production and chemotaxis. One of ordinary skill in the art would be motivated to create a pharmaceutical composition comprising a CRP-derived peptide as taught by Shepard et al. and using such a pharmaceutical composition as an anti-inflammatory medication and a means of modulating pro-inflammatory functions of neutrophils. This motivation is further supported by Shepard et al. who teach a beneficial role of CRP in inflammation in that upon its degradation it yields bioactive peptides that oppose the tissue destructive potential of activated neutrophils. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Hutson whose telephone number is (703) 308-0066. The examiner can normally be reached on M-F from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapy Achutamurthy (Murthy), can be reached on (703) 308-3804. The fax number for Official Papers to Technology Center 1600 is (703) 305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Richard Hutson, Ph.D.
9/7/2000

Rebecca Prouty

REBECCA E. PROUTY
PRIMARY EXAMINER
TECH CENTER 1600
1600